

Aggregate Mining Unit Operation

Proposed Reclamation Cost Estimation Summary

Reclamation Item	Units	Description	Typical Cost Range		Recommended Cost
Pit Walls					
	Cu. Yd.	Re-Grading and Topsoiling Costs	\$ 0.39	- \$ 0.55	\$ 0.44
	Acre	Revegetation Cost (Disc)	\$ 600	- \$ 900	\$ 607
	Acre	Revegetation Cost (Hydro-seed)	\$ 1,175	- \$ 1,372	\$ 1,175
	Each	Containerized Trees and Shrubs	\$ 5	- \$ 30	\$ 10
Stockpiles,Overburden or Fines Areas					
	Cu. Yd.	Re-Grading and Topsoiling Costs	\$ 0.39	- \$ 0.55	\$ 0.44
	Acre	Revegetation Cost (Disc)	\$ 600	- \$ 900	\$ 607
	Acre	Revegetation Cost (Hydro-seed)	\$ 1,175	- \$ 1,372	\$ 1,175
	Each	Containerized Trees and Shrubs	\$ 5	- \$ 30	\$ 10
Roads (Access)					
(Roads with Side Slope < 30%)	Linear Ft.	Re-Grading and Topsoiling Costs	\$ 1.21	- \$ 1.70	\$ 1.70
(Roads with Side Slope >30%)	Linear Ft.	Re-Grading and Topsoiling Costs	\$ 2.55	- \$ 5.42	\$ 2.60
	Acre	Revegetation Cost (Disc)	\$ 600	- \$ 900	\$ 607
	Acre	Revegetation Cost (Hydro-seed)	\$ 1,175	- \$ 1,372	\$ 1,175
Structures					
(Break-up and bury Slab)	Sq. Ft.	Demolition & Removal - Metal Building	\$ 3.03	- \$ 3.40	\$ 3.40
(Break-up and bury Slab)	Sq. Ft.	Demolition & Removal - Masonry Block Building	\$ 3.50	- \$ 6.06	\$ 3.50
(Break-up and bury Slab)	Sq. Ft.	Demolition & Removal - Concrete Building	\$ 15.86	- \$ 87.34	\$ 15.86
	Linear Mile	Powerline Removal (Single Pole Utility)	\$ 10,000	-	\$ 10,000
	each	Transformer Removal	\$ 5,000	-	\$ 5,000
	Linear Ft.	Demolition - Chain Link Fencing	\$ 3.47	-	\$ 3.47
	Linear Ft.	Demolition - Barb Wire Fencing (3 strand)	\$ 1.94	- \$ 1.96	\$ 1.94
	Linear Ft.	Removal - 15" Culvert	\$ 10.29	-	\$ 10.29
	Linear Ft.	Removal - 36" Culvert	\$ 17.15	-	\$ 17.15
(Break-up and bury)	Sq. Ft.	Demolition - Concrete Pads/Roads 12" Thickness	6.78	-	\$ 6.78
Construction					
	Linear Ft.	Construction - Barb Wire Fencing (3 strand)	\$ 1.88	- \$ 4.51	\$ 1.88
	Sq. Yard	Install Rip Rap Erosion Lining	\$ 23.75	- \$ 54.69	\$ 23.75
Material Haulage for Backfill					
	Cu. Yard	Truck and Loader - 2000Ft. One Way	\$ 1.03	- \$ 1.12	\$ 1.03
	Cu. Yard	Dozer and Scraper - 1000Ft. One Way	\$ 0.50	- \$ 0.72	\$ 0.72
Care and Maintenance					
	Ton	Trash Disposal	\$ 55.00	- \$ 65.00	\$ 60.00
	Each	Site Monitor and Reporting	\$ 1,500	- \$ 3,000	\$ 2,000

Estimated Reclamation Operating and Material (O&M) Cost Sub-Total

Administrative Costs					
% of O&M Cost	Contingency	7%	-	20%	10%
% of O&M Cost	General Mobilization / De-Mobilization	1%	-	5%	4%
% of O&M Cost	Indirect costs	2%	-	30%	2%
% of O&M Cost	Contractor Profit	9%	-	12%	10%
% of O&M Cost	Contract Administration	10%	-	18%	10%

Total Estimated Financial Assurance Amount

Example Cost Estimation

Example Sand & Gravel Mining Company - Plant 1 (250 Ac Operation in Phoenix Valley Area:

Pit is approximately 2,000 feet by 4,000 feet and 50 feet deep, pit walls require 300,000 cubic yards of balanced cut-fill material movement to create 3H:1V reclaim slopes
Overburden dump is 300 feet by 500 feet and 50 feet high, requires approximately 80,000 cubic yards of balanced cut-fill material movement to create 3H:1V reclaim slope
There are approximately 16,000 feet of access roads (40 feet wide) on site, 4,000 feet of those roads will remain after reclamation
There is a metal shop building 30 feet by 60 feet on concrete slab, a truck scale (15 by 100 slab), and a masonry block scalehouse on slab (20 by 40)
The property has approximately 12,000 feet of chain link fencing that needs to be demolished and hauled away
There is one 3-phase powerline (and associated transformers) that runs approximately 2,000 feet on the property
There is enough topsoil stored in the berms along the pit crests to cover the entire disturbed area

Proposed Reclamation Cost Estimation Summary - WorkSheet

Reclamation Item	Units	Description	Suggested Cost	Number of Units	Reclamation Cost
Pit Walls					
	Cu. Yd.	Re-Grading and Topsoiling Costs	\$ 0.44	300,000	\$ 132,000
	Acre	Revegetation Cost (Disc)	\$ 607	184	\$ 111,700
	Acre	Revegetation Cost (Hydro-seed)	\$ 1,175		\$ -
	Each	Containerized Trees and Shrubs	\$ 10		\$ -
Stockpiles,Overburden or Fines Areas					
	Cu. Yd.	Re-Grading and Topsoiling Costs	\$ 0.44	80,000	\$ 35,200
	Acre	Revegetation Cost (Disc)	\$ 607	4	\$ 2,100
	Acre	Revegetation Cost (Hydro-seed)	\$ 1,175		\$ -
	Each	Containerized Trees and Shrubs	\$ 10	100	\$ 1,000
Roads (Access)					
(Roads with Side Slope < 30%)	Linear Ft.	Re-Grading and Topsoiling Costs	\$ 1.70	12,000	\$ 20,400
(Roads with Side Slope >30%)	Linear Ft.	Re-Grading and Topsoiling Costs	\$ 2.60		\$ -
	Acre	Revegetation Cost (Disc)	\$ 607	11	\$ 6,700
	Acre	Revegetation Cost (Hydro-seed)	\$ 1,175		\$ -
Structures					
(Break-up and bury Slab)	Sq. Ft.	Demolition & Removal - Metal Building	\$ 3.40	1,800	\$ 6,100
(Break-up and bury Slab)	Sq. Ft.	Demolition & Removal - Masonry Block Building	\$ 3.50	800	\$ 2,800
(Break-up and bury Slab)	Sq. Ft.	Demolition & Removal - Concrete Building	\$ 15.86		\$ -
	Linear Mile	Powerline Removal (Single Pole Utility)	\$ 10,000	0.38	\$ 3,800
	each	Transformer Removal	\$ 5,000	3	\$ 15,000
	Linear Ft.	Demolition - Chain Link Fencing	\$ 3.47	12,000	\$ 41,600
	Linear Ft.	Demolition - Barb Wire Fencing (3 strand)	\$ 1.94		\$ -
	Linear Ft.	Removal - 15" Culvert	\$ 10.29		\$ -
	Linear Ft.	Removal - 36" Culvert	\$ 17.15		\$ -
(Break-up and bury)	Sq. Ft.	Demolition - Concrete Pads/Roads 12" Thickness	6.78	1,500	\$ 10,200
Construction					
	Linear Ft.	Construction - Barb Wire Fencing (3 strand)	\$ 1.88		\$ -
	Sq. Yard	Install Rip Rap Erosion Lining	\$ 23.75		\$ -
Material Haulage for Backfill					
	Cu. Yard	Truck and Loader - 2000Ft. One Way	\$ 1.03		\$ -
	Cu. Yard	Dozer and Scraper - 1000Ft. One Way	\$ 0.72		\$ -
Care and Maintenance					
	Ton	Trash Disposal	\$ 60.00	16	\$ 1,000
	Annual	Site Monitor and Reporting	\$ 2,000	2	\$ 4,000

Estimated Reclamation Operating and Material (O&M) Cost Sub-Total =	\$ 393,600
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Administrative Costs

% of O&M Cost	Contingency	10%	\$ 39,400
% of O&M Cost	General Mobilization / De-Mobilization	4%	\$ 15,700
% of O&M Cost	Indirect costs	2%	\$ 7,900
% of O&M Cost	Contractor Profit	10%	\$ 39,400
% of O&M Cost	Contract Administration	10%	\$ 39,400

Total Estimated Financial Assurance Amount =	\$ 535,400
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Proposed Reclamation Cost Estimation Summary - WorkSheet

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Pit Walls					
	Cu. Yd.	Re-Grading and Topsoiling Costs	\$ 0.44		
	Acre	Revegetation Cost (Disc)	\$ 607		
	Acre	Revegetation Cost (Hydro-seed)	\$ 1,175		
	Each	Containerized Trees and Shrubs	\$ 10		
Stockpiles,Overburden or Fines Areas					
	Cu. Yd.	Re-Grading and Topsoiling Costs	\$ 0.44		
	Acre	Revegetation Cost (Disc)	\$ 607		
	Acre	Revegetation Cost (Hydro-seed)	\$ 1,175		
	Each	Containerized Trees and Shrubs	\$ 10		
Roads (Access)					
(Roads with Side Slope < 30%)	Linear Ft.	Re-Grading and Topsoiling Costs	\$ 1.70		
(Roads with Side Slope >30%)	Linear Ft.	Re-Grading and Topsoiling Costs	\$ 2.60		
	Acre	Revegetation Cost (Disc)	\$ 607		
	Acre	Revegetation Cost (Hydro-seed)	\$ 1,175		
Structures					
(Break-up and bury Slab)	Sq. Ft.	Demolition & Removal - Metal Building	\$ 3.40		
(Break-up and bury Slab)	Sq. Ft.	Demolition & Removal - Masonry Block Building	\$ 3.50		
(Break-up and bury Slab)	Sq. Ft.	Demolition & Removal - Concrete Building	\$ 15.86		
	Linear Mile	Powerline Removal (Single Pole Utility)	\$ 10,000		
	each	Transformer Removal	\$ 5,000		
	Linear Ft.	Demolition - Chain Link Fencing	\$ 3.47		
	Linear Ft.	Demolition - Barb Wire Fencing (3 strand)	\$ 1.94		
	Linear Ft.	Removal - 15" Culvert	\$ 10.29		
	Linear Ft.	Removal - 36" Culvert	\$ 17.15		
(Break-up and bury)	Sq. Ft.	Demolition - Concrete Pads/Roads 12" Thickness	6.78		
Construction					
	Linear Ft.	Construction - Barb Wire Fencing (3 strand)	\$ 1.88		
	Sq. Yard	Install Rip Rap Erosion Lining	\$ 23.75		
Material Haulage for Backfill					
	Cu. Yard	Truck and Loader - 2000Ft. One Way	\$ 1.03		
	Cu. Yard	Dozer and Scraper - 1000Ft. One Way	\$ 0.72		
Care and Maintenance					
	Ton	Trash Disposal	\$ 60.00		
	Annual	Site Monitor and Reporting	\$ 2,000		

Estimated Reclamation Operating and Material (O&M) Cost Sub-Total =

Administrative Costs					
% of O&M Cost	Contingency	10%			
% of O&M Cost	General Mobilization / De-Mobilization	4%			
% of O&M Cost	Indirect costs	2%			
% of O&M Cost	Contractor Profit	10%			
% of O&M Cost	Contract Administration	10%			

Total Estimated Financial Assurance Amount =